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EXAMINER

WERNER, BRIAN P

ART UNIT	PAPER NUMBER
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2621

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/415,594

Applicant(s)

ROWE ET AL.

Examiner

Brian P. Werner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 October 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a), which requires the following (with emphasis added):

The drawing in a nonprovisional application must show every feature of the invention specified in the claims. However, conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation (e.g., a labeled rectangular box).

Therefore, the drawings must show every feature of the invention specified in the claims. For example, the verifying of claim 1, the difference calculation of claim 2, the model of claims 3 and 4, the calculating of claims 10-11, the computer, database and means for obtaining of claim 19, etc. (this list is not exhaustive) along with every other claimed feature must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

**A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.**

***Inventorship – Request for Information***

2. It is noted that many claimed features of the Messerschmidt reference (US 5,655,530 A – applied in the art rejections below) are also claimed by applicants in the instant application. For example, the index matching medium, the chemicals used as the index matching medium, the index of refraction of the index matching medium, the infrared sensor and receiver, the spectrum analyzer, etc. are claimed in both Messerschmidt and in the instant application. Should Messerschmidt be listed as an applicant in the instant application?

***Information Disclosure – Request for Information***

3. The aforementioned Messerschmidt reference (US 5,655,530 A – applied in the art rejections below), which is assigned to the assignee of the instant application, is considered to be pertinent. Any reference known to applicants that disclose similar subject matter are considered to be pertinent to the prosecution of the instant application, and are requested by examiner for consideration.

***Specification***

4. The U.S. patent application serial numbers at specification page 1, and elsewhere throughout the specification, should be updated with U.S. Patent Numbers when available.

5. The disclosure is objected to because of the following informalities: Specification page 24, line 6, is missing a serial number. Appropriate correction is required.

6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claim 23 requires an "index-matching medium" that has a "refractive index between about 1.30 and about 1.45". This range of values does not have an antecedent basis in the specification. For example, specification page 13, line 1, requires a "refractive index of about 1.38". However, the claimed range of values is not described.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The use of an "index-matching medium" as described at specification page 9, line 22, is critical or essential to the practice of the invention, but not included in the claim(s). Thus, specification does not provide an enabling disclosure for making and using the invention without the index matching medium. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Applicant states that "because many constituents are present at very low concentrations, it has been found imperative

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to couple light into and out from the tissue in an efficient manner” and “the present invention incorporates an index-matching medium” at specification page 9, lines 20-24. External evidence that an index matching medium is critical to the invention is found in the Messerschmidt reference (i.e., US 5,655,530 A – applied in the art rejections below), at column 8, line 60, which also states, “because many constituents are present at very low concentrations, it has been found imperative to couple light into and out from the tissue in an efficient manner” and “the present invention incorporates an index-matching medium”. Messerschmidt also states that the use of an index matching medium for measuring subcutaneous spectra is “key” at column 7, line 38. None of the above claims require such a medium, and the specification does not provide an enabling disclosure for making and using the invention without the index matching medium.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claim 3 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites, “evaluating the difference calculated wherein said evaluation is done by a model that identifies between patients’ differences.” It is unclear what is meant by “patients’ differences”. The term patient does not have an antecedent basis, and thus it is not clear if the patients are same as the claimed “verified individuals” or

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"target individual" as recited in the preamble of claim 1. In addition, what is meant by a "model that identified between patients' differences"? Does this model identify differences between different patients, or differences within each patient? What type of differences are identified? Differences in what? This claim, as best understood in accordance with specification page 23, first paragraph, will be interpreted as follows: Said evaluation is done by a model that identifies differences between authorized spectra.

Claim 23 requires an "index-matching medium" that has a "refractive index between about 1.30 and about 1.45". The terms "about" render this claim indefinite, because the degree of variation afforded by the term "about" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In addition, the entire claimed range of 1.30 to 1.45 is not founded in the specification as described in the objection above. Therefore, how would one know the scope of the range of about 1.30 to about 1.45? Clarification is required.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

12. Claims 1, 2, 5, 7 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Ott (US Re. 29,008). Regarding claim 1, Ott discloses a method for verifying the identity of a person ("identification" at column 1, line 11), comprising: obtaining target tissue spectral data from a target individual (figure 1, numerals 20 and 26), the data having a number of measurement wavelengths ("discrete selectable frequencies" at column 3, line 23; "100Hz, to 10KHz" at column 3, line 17); and positively verifying the target individual purported identity ("accepting or rejecting a person" at column 6, line 8) by comparison of authorized tissue spectral data having plural wavelengths to the target tissue spectral data (figure 1, numeral 36) relative to a preselected threshold



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("preselected tolerances" at column 5, line 26; "criteria" at column 6, line 8). Regarding claim 2, a difference is calculated ("differential amplifiers" at column 5, line 35).

Regarding claims 5 and 8, the number of authorized tissue spectral data is greater than two (data is stored for multiple frequencies, as depicted in figure 2; in fact, multiple samples are taken at frequencies spanning from "100Hz to 10KHz" at column 3, line 17). Regarding claim 7, the number of verified individuals is greater than one ("all stored transfer functions" at column 5, line 13; Ott stores data for plural persons needing access).

13. Claims 1, 2, 5-8 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Prokoski et al. (US 5,163,094 A). Regarding claims 1 and 14, Prokoski discloses a method for verifying the identity of a person ("identity of an individual" at column 1, line 7), comprising: obtaining target tissue spectral data from a target individual (figure 3, numeral 34; infrared spectral data is acquired as depicted in figure 4), the data having a number of measurement wavelengths ("3-6 or 8-14 micron ranges are preferred" at column 4, line 52); and positively verifying the target individual purported identity (figure 3, numeral 68) by comparison of authorized tissue spectral data having plural wavelengths to the target tissue spectral data ("comparison may be made with a number of known faceballs stored in the system memory with thermal images of authorized individuals" at column 8, line 39; see figure 3, numeral 66) relative to a preselected threshold ("predetermined threshold" at column 7, line 68). Regarding claim 14 specifically, a discriminant analysis is performed to discriminate between the

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stored, and input spectral data (column 7, line 62). Regarding claim 2, a difference is calculated (column 7, line 62). Regarding claims 5 and 8, the number of authorization tissue spectral data is greater than two ("five areas containing the elemental shapes" at column 7, line 7). Regarding claim 6, an embodiment is disclosed where the number of verified individuals is equal to one (the spectral data for a single individual is written to a "facecard bearing the subject signature" at column 7, line 37). Regarding claim 7, an embodiment is disclosed where the number of verified individuals is greater than one ("a number of known faceballs stored in the system memory" at column 8, line 39). Regarding claim 12, the spectra includes near infrared ("infrared" and "3-6 or 8-14 micron ranges are preferred" at column 4, line 50). Regarding claim 13, subcutaneous blood contributes substantially to the spectra, as heat from the blood is that which is measured by the infrared camera ("the flow of blood" at column 1, line 31).

14. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Stoianov et al. (US 5,761,330 A). Regarding claim 1, Stoianov discloses a method for verifying the identity of a person ("verification" at column 1, line 6), comprising: obtaining target tissue spectral data from a target individual ("array  $a_{ik}^v$  is obtained" at column 5, line 28; this array represents the Fourier spectrum of a finger; i.e., "Fourier spectrum" at column 3, line 21), the data having a number of measurement wavelengths (a Fourier spectrum has plural measurement wavelengths, each having "intensity and phase" at column 3, line 53); and positively verifying the target individual purported identity by comparison ("metric of comparison" at column 5, line 34) of authorized tissue spectral data

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("database 32 which corresponds to people's fingerprints" at column 5, line 3; "pre-stored template" at column 5, line 30) having plural wavelengths (the pre-stored templates also related to Fourier spectra) to the target tissue spectral data relative to a preselected threshold ("individual threshold" at column 5, line 32). Regarding claim 2, a difference is calculated (the "metric of comparison" at column 5, line 34, indicates the difference between the input and stored data). Regarding claim 3, the evaluation is done by a model that identifies differences between authorized spectra (the target spectra is compared with each of the stored authorized spectra to determine differences; i.e., "comparator template arrays ... of database 32" at column 5, line 3). Regarding claim 4, the differences are processed through a model to determine the significance of identified differences (i.e., if " $K_v$  is higher than said pre-stored individual threshold  $K^*$ , the verification is obtained" at column 5, line 36; thus, the value  $K^*$  is used to determine the significance of the differences, where if  $K_v$  is higher than  $K^*$ , the differences are deemed insignificant, and thus verification is obtained; the value  $K^*$  is a model that takes into account false acceptance and false rejection rates as described at column 5, lines 5-20).

15. Claims 1, 10, 11 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Toyoda et al. (US 5,999,637 A). Regarding claims 1 and 14, Toyoda discloses a method for verifying the identity of a person ("confirming identities" at column 1, line 11), comprising: obtaining target tissue spectral data from a target individual (figure 5(B), numeral S403), the data having a number of measurement wavelengths (a Fourier

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spectrum is obtained as depicted in figure 5(B)); and positively verifying the target individual purported identity by comparison (figure 5(B), numerals S404, S405 and S406) of authorized tissue spectral data (Figure 5(B), "reference fingerprint"; "plurality of comparative fingerprints" at column 6, line 29) having plural wavelengths (figure 5(B), numeral S401; "store the Fourier transformed fingerprint" at column 11, line 23) to the target tissue spectral data relative to a preselected threshold ("correlation value exceeds the threshold .. the arbitrary person is the specified individual" at column 11, line 5). Regarding claim 10, the number of measurement wavelengths is greater than four (the Fourier spectrum contains numerous frequencies; far more than four), where an inter-person spectral differences are calculated ("cross-correlation with a number of other people's fingerprints" at column 8, line 26) and wavelengths are selected to maximize spectral differences ("masking operation performed on the Fourier transform plane" at column 19, line 12; "in order to erase ... a pattern of the fingerprint that will largely influence on the production of a high cross-correlation" at column 19, line 19). Regarding claim 11, the number of authorized tissue spectra is greater than four ("six-hundred comparative fingerprints" at column 8, line 10), further comprising calculating intra-person spectral differences ("autocorrelations" at column 16, line 12), and selecting wavelengths to minimize intra-person differences (this is met in at least two ways; first, "selects one fingerprint according to the above criteria [the autocorrelations]" at column 16, line 16; second, the aforementioned "masking operation" can also be used for this purpose).

***Claim Rejections - 35 USC § 103***

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16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 1, 12, 13 and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Messerschmidt (US 5,655,530 A), Robinson et al. (US 4,975,581 A – INCORPORATED BY REFERENCE IN MESSERSCHMIDT at Messerschmidt column 2, line 50; i.e., “The disclosure of Robinson et al. is incorporated herein by reference”), and Peterson et al. (US 6,330,346 B1). Regarding claims 1, 12, 13 and 19, Messerschmidt discloses a computer including input devices and output devices (Messerschmidt: figure 1, numeral 30; “computer” at column 13, line 52; the “spectrum analyzer 30” at column 13, line 25 is an input device to the computer; the outputs the result of a comparison as described at column 13, line 29; i.e., “computer to compare the data”), a database (Messerschmidt: “memory” at column 13, line 52) including near-infrared tissue spectra (Messerschmidt: figure 3) for a plurality of samples (Messerschmidt: “calibration samples” at column 8, line 8; the calibration samples are described by Robinson as “plural pre-stored patterns representing absorption by the known fluids at these plural wavelengths” at column 7, line 15), means for obtaining near-infrared tissue spectra from a target individual (Messerschmidt: figure 1) including a near-infrared radiation source (Messerschmidt: figure 1, numeral 16) projecting near-infrared radiation subcutaneously (Messerschmidt: figure 1, numeral 10) and a near-infrared spectrometer measuring subcutaneous near-

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infrared intensity over a plurality of wavelengths (Messerschmidt: figure 1, numeral 30), and a program for discriminating between the target spectrum and the samples using the database and target spectrum (Messerschmidt: "multivariate algorithm" at column 8, line 5 and "compare the data received from such devices to the model" at column 13, line 28; Robinson: "compared with the calibration samples" and "comparison enables the determination" at column 4, lines 47 and 51 respectively). Regarding claims 20-23, Messerschmidt discloses an index matching medium ("index-matching medium" at column 8, line 16) comprising a chlorofluorocarbon polymer ("chlorofluorocarbons" at column 12, line 32) that includes chlorotrifluoroethylene ("chlorotrifluoroethylene" at column 12, line 33) and has a refractive index between about 1.3 and about 1.45 ("1.35-1.40" at column 7, line 60). Messerschmidt does not disclose a database of "authorized individuals", where the discriminating between the target and stored tissue spectra is for purposes verifying the purported identity of the target individual. Peterson discloses a system for subcutaneous characteristic measurement ("detecting the subcutaneous conditions and/or structure of a living organism" at column 1, line 13) by measuring reflected infrared light ("light-emitting source" and "light-detection element" at column 2, line 8; "720-750 nanometers ... 850-1000 nanometers" at column 3, line 16), comprising a database of authorized individuals ("pre-recorded database" at column 1, line 63), where the discriminating between the target and stored tissue data ("the characteristics are compared with the database for decision-making" at column 1, line 64) is for purposes verifying the purported identity of the target individual ("identification system" at column 1, line 58). It would have been obvious at the time the invention was

made to one of ordinary skill in the art to utilize the subcutaneous measurement system disclosed by Messerschmidt, for the purposes of verifying the identity of a target individual (i.e., by comparison with a database of spectral data of authorized individuals) as taught by Peterson, in order to provide Messerschmidt with the additional, and beneficial function of “reliably” detecting the identity of an individual using a method that is “not easily tampered with” (Peterson, column 1, lines 38-39), is inexpensive (Peterson, column 1, line 42) and “can be used or readily placed in a large variety of structures without a great deal of physical alteration” (Peterson, column 1, line 45). Likewise, the reverse of the above combination would have also been obvious. That is, it would have been obvious to utilize the subcutaneous measurement system of Messerschmidt, in order to measure the “subcutaneous conditions and/or structures of a living organism” as required by Peterson (i.e., column 1, line 12), in order to provide an “improved optical interface between a sensor probe and a skin surface or tissue surface of the body containing the tissue to be analyzed” (Messerschmidt, column 5, line 53) which uses an “index matching medium [that] increases the repeatability and accuracy of the measuring procedure” (Messerschmidt, column 8, line 16).

18. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ott (US Re. 29,008) in view of Dolfing (US 6,317,507 B1). Ott discloses a method for verifying the identity of a person by comparing target and authorized tissue spectra as described in the 35 U.S.C. 102 rejection of claim 1 above. While Ott discloses a comparison of tissue spectra (i.e., figure 1, numeral 36), Ott does not disclose performing discriminant

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analysis on the target and authorized tissue spectra. Dolfing discloses a biometric verification system, wherein Dolfing teaches the comparison of information using a "discriminant analysis" (Dolfing, column 1, line 53). It would have been obvious at the time the invention was made to one of ordinary skill in the art to utilize the discriminant analysis techniques taught by Dolfing, in order to discriminate between the target and authorized spectra of Ott, in order to provide for "faster verification ... and reduction of the required storage capacity" (Dolfing, column 2, line 1).

19. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Messerschmidt (US 5,655,530 A), Robinson et al. (US 4,975,581A – INCORPORATED BY REFERENCE IN MESSERSCHMIDT at Messerschmidt column 2, line 50; i.e., "The disclosure of Robinson et al. is incorporated herein by reference"), and Peterson et al. (US 6,330,346 B1) as applied to claim 19 above, and further in view of Hoshino et al. (US 4,944,021). Regarding each of these claims, neither Messerschmidt, Robinson nor Peterson disclose obtaining the purported identity of the target individual. Regarding claim 16 specifically, neither Messerschmidt, Robinson nor Peterson disclose utilizing the purported identity of the target individual in the discriminating step. Hoshino discloses a identity verification system ("identifying authorized personnel" at column 1, line 12) comprising obtaining the purported identity of the target individual ("the ID code from the keyboard" at column 2, line 68; an "ID code is allocated to each of the registered persons and is entered" as the purported identity of the person seeking verification at column 2, line 61) and utilizing the



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purported identity of the target individual in a discriminating step (the ID code "is converted to an address indicating the storage position of the file 14 by an input/output interface" at column 3, line 1; the data is "read out from the file 14" for subsequent discrimination at column 3, line 2). It would have been obvious at the time the invention was made to one of ordinary skill in the art to input and utilize the purported identity of the target individual as taught by Hoshino, as part of the discrimination disclosed by Peterson (i.e., "the characteristics are compared with the database for decision-making" at Peterson column 1, line 64 ) in the Messerschmidt, Robinson and Peterson combination, in order to provide a "system that can be installed inexpensively and compactly because the processor verifies the [input data] referring to only one registered pattern" (Hoshino, column 7, line 11), and in order to provide a rapid and efficient method of extracting the target individual's stored file from the database for subsequent comparison, thereby obviating the time consuming process of comparing the target individual's spectral data with each and every data stored in the database.

20. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Prokoski et al. (US 5,163,094) and Hoshino et al. (US 4,944,021). Regarding each of these claims, Prokoski discloses obtaining the purported identity of the target individual by comparing infrared tissue spectral data as described in the 35 U.S.C. 102 rejection above. Regarding claims 14 and 16 specifically, a discriminant analysis is performed to discriminate between the stored, and input spectral data (column 7, line 62). Regarding claim 17, subcutaneous blood contributes substantially

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to the spectra, as heat from the blood is that which is measured by the infrared camera ("the flow of blood" at column 1, line 31). Much of the infrared radiation emanating from under the skin is reflected by other subcutaneous tissue before emerging from the skin. The claim makes no distinction about where the source of the infrared radiation is, or in which direction it is reflected. Prokoski does not disclose obtaining the purported identity of the target individual. Regarding claim 16 specifically, Prokoski does disclose utilizing the purported identity of the target individual in the discriminating step. Hoshino discloses an identity verification system ("identifying authorized personnel" at column 1, line 12) comprising obtaining the purported identity of the target individual ("the ID code from the keyboard" at column 2, line 68; an "ID code is allocated to each of the registered persons and is entered" as the purported identity of the person seeking verification at column 2, line 61) and utilizing the purported identity of the target individual in a discriminating step (the ID code "is converted to an address indicating the storage position of the file 14 by an input/output interface" at column 3, line 1; the data is "read out from the file 14" for subsequent discrimination at column 3, line 2). It would have been obvious at the time the invention was made to one of ordinary skill in the art to input and utilize the purported identity of the target individual as taught by Hoshino, as part of the discrimination disclosed by Prokoski, in order to provide a "system that can be installed inexpensively and compactly because the processor verifies the [input data] referring to only one registered pattern" (Hoshino, column 7, line 11), and in order to provide a rapid and efficient method of extracting the target individual's stored file from the database for subsequent comparison, thereby obviating the time consuming

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process of comparing the target individual's spectral data with each and every data stored in the database.

21. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ott (US Re. 29,008) and Itsumi et al. (US 5,559,504). Ott discloses obtaining the purported identity of the target individual by comparing infrared tissue spectral data as described in the 35 U.S.C. 102 rejection above. Ott does not disclose adding the target spectrum to the authorization spectra after the verification. Itsumi discloses an identity verification system ("identification device" at column 1, line 11) comprising adding target identification data to authorization data after the verification ("memory is updated" at column 10, line 41; "newly collated input ... data is stored on the memory as the registered data" at column 10, line 43). It would have been obvious at the time the invention was made to one of ordinary skill in the art to add the target tissue spectra of Ott to the database of authorization spectra after the target data has been verified as taught by Itsumi, in order to update the stored authorized data compensate for "changes ... as time passes, e.g., a growing child or an individual whose [data] has changed as he [is] injured" (Itsumi, column 10, line 43), thereby causing the target individual to be subjected to "collation with a small degradation in recognition rate over time, thereby improving collation precision" (Itsumi, column 10, line 45).

22. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Messerschmidt (US 5,655,530 A), Robinson et al. (US 4,975,581A –

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INCORPORATED BY REFERENCE IN MESSERSCHMIDT at Messerschmidt column 2, line 50; i.e., "The disclosure of Robinson et al. is incorporated herein by reference"), Peterson et al. (US 6,330,346 B1) and Hoshino et al. (US 4,944,021) as applied to claims 14-17 above, and further in view of Toyoda et al. (US 5,999,637 A). In the Messerschmidt, Robinson, Peterson and Hoshino combination, both Messerschmidt and Peterson disclose measuring at a plurality of wavelengths as already described in the 35 U.S.C. 103 rejection above. However, none disclose calculating spectral differences between the spectra, and selecting the plurality of wavelengths such that spectral differences between spectra of authorized persons is maximized. Toyoda discloses a method for verifying the identity of a person ("confirming identities" at column 1, line 11) as fully described in the 35 U.S.C. 102 rejection above, where the teaching can be used for "various unique characteristic patterns other than fingerprints" (column 5, line 7), comprising calculating spectral differences between spectra ("cross-correlation with a number of other people's fingerprints" at column 8, line 26), and selecting the plurality of wavelengths such that spectral differences between spectra of authorized persons is maximized differences ("masking operation performed on the Fourier transform plane" at column 19, line 12; "in order to erase ... a pattern of the fingerprint that will largely influence on the production of a high cross-correlation" at column 19, line 19). It would have been obvious at the time the invention was made to one of ordinary skill in the art to maximize differences between authorized spectra of the Messerschmidt, Robinson, Peterson and Hoshino combination, by selecting (i.e., masking) wavelengths as taught by Toyoda, so that the "correlation between the [data]

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and the comparative [data] will become equal or lower than a threshold" (Toyoda, column 17, line 36), in order to "lower [the] possibility of erroneously judging a match between different persons" (Toyoda, column 2, line 37). That is, patterns of a person that are similar to the patterns of other people are "inappropriate as a reference ... for discriminating the person" (Toyoda, column 8, line 67) and the above combination remedies this according to the teaching of Toyoda.

### ***Conclusion***

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Caci (US 6,154,658 A) is pertinent as teaching the limitations of at least claim 1 (figure 3, and column 13, lines 1-29). Thomas is pertinent as teach the recognition based on a comparison of spectra (figure 3).


24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian P. Werner whose telephone number is 703-306-3037. The examiner can normally be reached on M-F, 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H. Boudreau can be reached on 703-305-4706. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Brian Werner  
Patent Examiner  
March 22, 2002



**BRIAN WERNER  
PATENT EXAMINER  
ART UNIT 2621**